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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
10/542,992	05/02/2006	Guofu Zhou	NL 030018	1192
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EXAMINER MA, CALVIN				
ART UNIT		PAPER NUMBER		
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Please find below and/or attached an Office communication concerning this application or proceeding.

The time period for reply, if any, is set in the attached communication.

Office Action Summary

Application No.

10/542,992

Applicant(s)

ZHOU ET AL.

Examiner

CALVIN C. MA

Art Unit

2629

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --
Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

- 1) ☒ Responsive to communication(s) filed on 21 July 2005.
- 2a) ☐ This action is **FINAL**. 2b) ☒ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

- 4) ☒ Claim(s) 1-11 is/are pending in the application.
- 4a) Of the above claim(s) _____ is/are withdrawn from consideration.
- 5) ☐ Claim(s) _____ is/are allowed.
- 6) ☒ Claim(s) 1-11 is/are rejected.
- 7) ☐ Claim(s) _____ is/are objected to.
- 8) ☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☐ The drawing(s) filed on _____ is/are: a) ☐ accepted or b) ☐ objected to by the Examiner.
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

- 12) ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☐ All b) ☐ Some * c) ☐ None of:
1. ☐ Certified copies of the priority documents have been received.
 2. ☐ Certified copies of the priority documents have been received in Application No. _____.
 3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

- 1) ☒ Notice of References Cited (PTO-892)
- 2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
- 3) ☐ Information Disclosure Statement(s) (PTO/SI/02)
Paper No(s)/Mail Date _____
- 4) ☐ Interview Summary (PTO-413)
Paper No(s)/Mail Date _____
- 5) ☐ Notice of Informal Patent Application
- 6) ☐ Other: _____

DETAILED ACTION

Claim Rejections - 35 USC § 102

1. The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the basis for the rejections under this section made in this Office action:

A person shall be entitled to a patent unless –

(e) the invention was described in (1) an application for patent, published under section 122(b), by another filed in the United States before the invention by the applicant for patent or (2) a patent granted on an application for patent by another filed in the United States before the invention by the applicant for patent, except that an international application filed under the treaty defined in section 351(a) shall have the effects for purposes of this subsection of an application filed in the United States only if the international application designated the United States and was published under Article 21(2) of such treaty in the English language.

2. Claims 1-5, 7-9, and 11 are rejected under 35 U.S.C. 102(e) as being anticipated by Katase (USP 6,762,744).

As to claim 1, Katase discloses a display device (i.e. 100 electrophoretic display) (see Fig. 1) comprising:

pixels (104) with electrophoretic particles (3) (see Fig. 2, Col. 5, Lines 1-27),
a driver (140A) for supplying drive pulses to the pixels (18) to bring the pixels (18) in a predetermined optical state corresponding to image information to be displayed (see Fig. 3, Col. 6, Lines 7-45), and

a controller (300A) for controlling the driver (140A) to successively supply a drive pulse (D) and a correction pulse (Drest), the drive pulse (D) having a voltage level for bringing the electrophoretic particles (3) into a continuously moving state as long as the

drive pulse (D) is present to approximate a desired optical state, the correction pulse (Drest) having a voltage level being too low for bringing the electrophoretic particles (3) into a continuously moving state but high enough for moving the electrophoretic particles (3) over a relatively small distance with respect to dimensions of the pixels (104) to reach the desired optical state (i.e. the Drest pulse is design to set a brake on to the particle so it remain stable) (see Fig. 8, Col. 9, Lines 1-38).

As to claim 2, Katase teaches a display device as claimed in claim 1, wherein the drive pulse has a single variable voltage (i.e. according to the gray scale requirement the single pause is used for a given time) (see Fig. 19, Col. 14, Lines 25-40).

As to claim 3, Katase teaches a display device as claimed in claim 1, wherein the drive display device as claimed in claim 1, wherein the drive pulse is dependent upon at least one previous image (i.e. the compensation part 320 require past memory of setting of previous scanning which forms the output to the selection part 340) (see Fig. 17, Col. 13, Lines 45-67).

As to claim 4, Katase teaches a pulse has a variable duration (i.e. the pulse can have variable during according to scanning process with braking voltage) (see Fig. 34, Col. 22, Lines 1-44).

As to claim 5, Katase teaches a display device as claimed in claim 1, wherein, the voltage levels of the correction pulses (dcin) for the corresponding desired optical states, are stored in a memory (i.e. the voltage level are in memory of the controller) (see Fig. 17).

As to claim 7, Katase teaches a display device as claimed in claim 1, wherein the controller (15) further comprises a calculation unit (150) for determining a duration, or a voltage level, or both a duration and a voltage level of the drive pulse (Vni) with a transition based driving scheme (see Fig. 34, Col. 22, Lines 1-44).

As to claim 8, Katase teaches a display device as claimed in claim 1, wherein the controller (15) and the driver (10, 16) are adapted for supplying the drive pulse (Vni) having several levels (i.e. the plurality of voltage level for the various gray levels) (see Fig. 34. Col. 22, Lines 1-44)

As to claim 9, Katase teaches a display device as claimed in claim 1, wherein the display device further comprises a controller (400) being adapted for supplying a preset signal (Drest) preceding the drive pulse (D), the preset signal comprising a preset pulse having an energy sufficient to release the electrophoretic particles (8, 9) at a first position near one of the two electrodes corresponding to a first optical state, but too low to enable the particles (3) to reach a second position near the other electrode (5, 6) corresponding to a second optical state (i.e. the timing circuit provide for the timing

control of the preset signal Drest which facilitate the later driving pulse, the Drest pulse are lower in potential and require less energy as it prepares for driving period) (see Fig. 3 and 34, Col. 22, Lines 1-44).

As to claim 11, Katase teaches a display apparatus comprising a display device as claimed in claim 1 (i.e. an electrophoretic display) (see Fig. 1).

Claim Rejections - 35 USC § 103

3. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

4. Claim 6 rejected under 35 U.S.C. 103(a) as being unpatentable over Katase in view of Cok et al. (USP 6320325).

As to claim 6, Katase teaches a display device as claimed in claim 1, but does not explicitly teach further comprising an optical sensitive element (30) for measuring a light output of a pixel (18); a comparator (31) for comparing the measured light output (ML) with a desired light output (DL) to obtain a comparison signal (CO), the controller (15) being adapted for receiving the comparison signal (CO) to adapt the voltage level of the correction pulse (dcin) to obtain the desired light output.

Cok teaches comprising an optical sensitive element (21) for measuring a light output of a pixel (18); a comparator (31) for comparing the measured light output (ML) with a desired light output to obtain a comparison signal, the controller being adapted for receiving the comparison signal to adapt the voltage level of the correction pulse to obtain the desired light output (i.e. the photo sensor 21 is used to calibrate the display which necessarily requires the change of the individual driving of the emissive display element based on the feedback that is provided) (see Fig. 1, Col. 4, Lines 20-67).

Therefore it would have been obvious for one of ordinary skill in the art at the time the invention was made to have used the optical detection and feedback mechanism of Cok in the display system of Katase in order to provide improved display performance based on "current source compensation for temperature-induced brightness variation" (see Cok Col. 2, Lines 1-10).

5. Claim 10 rejected under 35 U.S.C. 103(a) as being unpatentable over Katase in view of Webber (USP 7170670).

As to claim 10, Katase teaches a display device as claimed in claim 1, but does not explicitly teach wherein the voltage magnitude of the correction pulse is selected between 0.5 and 3 Volts.

Webber teaches a voltage magnitude of the intermediate pulse is selected between 0.5 and 3 Volts (i.e. 2V is applied in the test where threshold of the display is tested) (see Fig. 21, Col. 25, Lines 20-45).

Therefore, it would have been obvious for one of ordinary skill in the art at the time the invention was made to have applied the actual value of Webber to the correction pulse of Katase since the level of the voltage is adjustable based on individual requirement of real world implementation of a display system where the experiment taught by Webber demonstrate that the behavior of the hybrid medium of the electro-phoretic display requires the necessary customization of driving pulse voltage setting (see Webber, Col. 25, Lines 1-45).

Inquiry

Any inquiry concerning this communication or earlier communications from the examiner should be directed to CALVIN C. MA whose telephone number is (571)270-1713. The examiner can normally be reached on 7:30-5:00.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Chanh Nguyen can be reached on 571-272-7772. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free). If you would like assistance from a USPTO Customer Service Representative or access to the automated information system, call 800-786-9199 (IN USA OR CANADA) or 571-272-1000.

Calvin Ma
September 10, 2009

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